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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.         | CONFIRMATION NO.       |
|--|-------------|----------------------|-----------------------------|------------------------|
| 10/595,174   | 03/17/2006  | Christoph Radinger   | WAS0742PUSA                 | 3923                   |
| 22045  | 7590        | 09/17/2007           |                             |                        |
| BROOKS KUSHMAN P.C.<br>1000 TOWN CENTER<br>TWENTY-SECOND FLOOR<br>SOUTHFIELD, MI 48075 |             |                      | EXAMINER<br>CHO, JENNIFER Y |                        |
|  |             |                      | ART UNIT<br>1621            | PAPER NUMBER           |
|  |             |                      | MAIL DATE<br>09/17/2007     | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/595,174 | <b>Applicant(s)</b><br>RADINGER ET AL. |  |
|                              | <b>Examiner</b><br>Jennifer Y. Cho   | <b>Art Unit</b><br>1621                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 16-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/3/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

### **Detailed Action**

This office action is in response to Applicant's communication filed on 3/17/2006.

Claims 16-31 are pending in this application.

### **IDS**

The information disclosure statement (IDS) filed on 4/3/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### **Claim Rejections – 35 USC 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being confusing, because of the "isocyanoatoorganosilanes" description. It is believed that the appropriate spelling of the word is "isocyanatoorganosilanes". Clarification is requested.

### **Claim Rejections - 35 USC 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be

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patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kammel et al. (US 6,812,361), in view of Greene et al. (US 6,084,226).

The instant claims are drawn to a process for preparing isocyanatoorganosilanes by microwave thermolysis of carbamatoorganosilanes, in the presence of a metal catalyst on a support.

Kammel et al. teaches a process for preparing isocyanatoorganosilanes by thermolysis of carbamatoorganosilanes, in the presence of a heterogeneous metal catalyst on a support (abstract). The catalysts include tin metal, Sn (I) and Sn(II), (column 2, lines 24-25), in the acetate metal salt form, e.g. dibutyltin diacetate (column 2, line 30), including the oxide of vanadium (column 2, lines 31-32), Al<sub>2</sub>O<sub>3</sub> and Ti<sub>2</sub>O. The support material includes SiO<sub>2</sub>, in the form of spheres (column 2, lines 41-45).

Kammel et al. is deficient in the sense that it does not teach the use of microwave thermolysis to prepare the isocyanatoorganosilanes.

Greene et al. teaches the advantages of microwave radiation to conduct chemical reactions. The advantages include the shortening of time for a chemical reaction and the direct targeting of heat to the chemical reagents (column 1, lines 20-34).

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use Greene et al.'s microwave radiation for Kammel et al.'s preparation of isocyanatoorganosilanes from thermolysis of carbamatoorganosilanes, since it is well-known that a variety of heating processes can be used in chemical reactions. Moreover, a skilled artisan would have been motivated to use microwave as a heating source with a reasonable expectation of reducing the reaction time. Absent any showing of unusual and/or unexpected results over applicant's particular heating source, the art obtains the same effect on the purity and yield of isocyanatoorganosilanes. Furthermore, the limitations in some of the dependent claims, not expressly taught in the art, are also deemed to be obvious. One of ordinary skill in the art would be motivated to make fine adjustments and optimize these parameters to arrive at the instantly claimed invention. The expected result would be an efficient production of isocyanatoorganosilanes from thermolysis of carbamatoorganosilanes for the chemical industry.

With respect to the limitation of claim 20, in which the catalyst is a homogeneous, it is the position of the examiner that one of ordinary skill in the art, at the time of the invention, would through routine and normal experimentation determine the optimization of this limitation to provide the best effective variable depending on the results desired.

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Thus it would be obvious in the reaction to optimize the kind of catalyst used, particularly as it is known that both homogeneous and heterogeneous catalysts have certain advantages over the other. The applicant does not show any unusual and/or unexpected results for the limitation stated. Note that the prior art provides the same effect desired by applicant, the preparation of isocyanatoorganosilanes with high purity and good yield.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (571) 272 0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho  
Patent Examiner

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FOR

Yvonne Eyler  
Supervisory Patent Examiner  
Technology Center 1600